LEED Newsletter

DOWNTOWN COURT TOWER

COMMISSIONING

ISSUE #2 July 2009

PROJECT FACTS

LOCATION
Phoenix, Arizona

CERTIFICATION TARGET:
LEED–NC v2.2 Silver

GROSS SQUARE FOOTAGE
695,000 ft^2

TOTAL PROJECT COST
$340 million

CONSTRUCTION COST
$259 million

OCCUPANCY
First Quarter 2012

ANNUAL ENERGY USE
(as designed): 66 $kBtu/ft^2$
(12% baseline reduction)

ANNUAL CARBON FOOTPRINT
(as designed): 57 lbs. CO_2/ft^2
(75% baseline reduction)

PROJECT TEAM

OWNER
Maricopa County

ARCHITECT
Gould Evans+AECOM

LANDSCAPE
Ten Eyck Landscape Architects

ENGINEERS
MEP: Syska Hennessy Group
Structural: Paragon Structural Design
Civil : PK Kland

SECURITY ELECTRONICS
Buford Goff & Associates

ACOUSTIC & AV
McKay Conant Hoover

LIGHTING: Candela

LEED CONSULTANT: Green Ideas

COMMISSIONING AGENT
Enovity, Inc.

PROGRAM MANAGER: Parsons Technology Group & HDR

CONSTRUCTION MANAGER @ RISK
Gilbane/Ryan

Commissioning the Downtown Court Tower

The Downtown Court Tower, a new 695,000 square foot courthouse in downtown Phoenix, is designed for LEED Silver Certification. Commissioning is an integral part of the LEED rating system and will help reduce energy consumption and operating costs for the facility. Enhanced commissioning will provide an additional credit towards the LEED Silver goal. Maricopa County has selected Enovity, Inc., to act as the LEED Commissioning Authority. to provide commissioning services. The Commissioning Authority's, role is to ensure that the facility is fulfilling the high standards of functional and operational performance for the building's occupants and staff as well as for the building's visitors.

What is Commissioning?

Commissioning is a quality-oriented process for achieving, verifying, and documenting that the performance of the facility, systems, and assemblies meets defined objectives and criteria. It verifies compliance with the criteria throughout design, construction, start-up, and the initial operating period of a facility. For an advanced building like the Downtown Court Tower, the commissioning process involves multiple building systems including heating, ventilating and air conditioning systems, lighting system controls, the building automation system, the electrical system and the plumbing system. The commissioning process verifies and documents that these building systems are designed, installed and tested to meet the owner's project requirements. The Commissioning Authority oversees and leads the commissioning process for the project and is actively involved in the review and functional testing of the building systems.

Acting in this third-party consultant role, Enovity is able to act as a neutral party and to witness, oversee and verify each process on behalf of the owner. The commissioning provider's main goal is to ensure that the owner's intent is achieved while the building is being designed and constructed. Enovity acts as a comprehensive quality assurance agent and lends additional technical expertise in energy efficiency and constructability reviews.

LEED Newsletter

DOWNTOWN COURT TOWER

COMMISSIONING

ISSUE #2 July 2009

The Commissioning Process

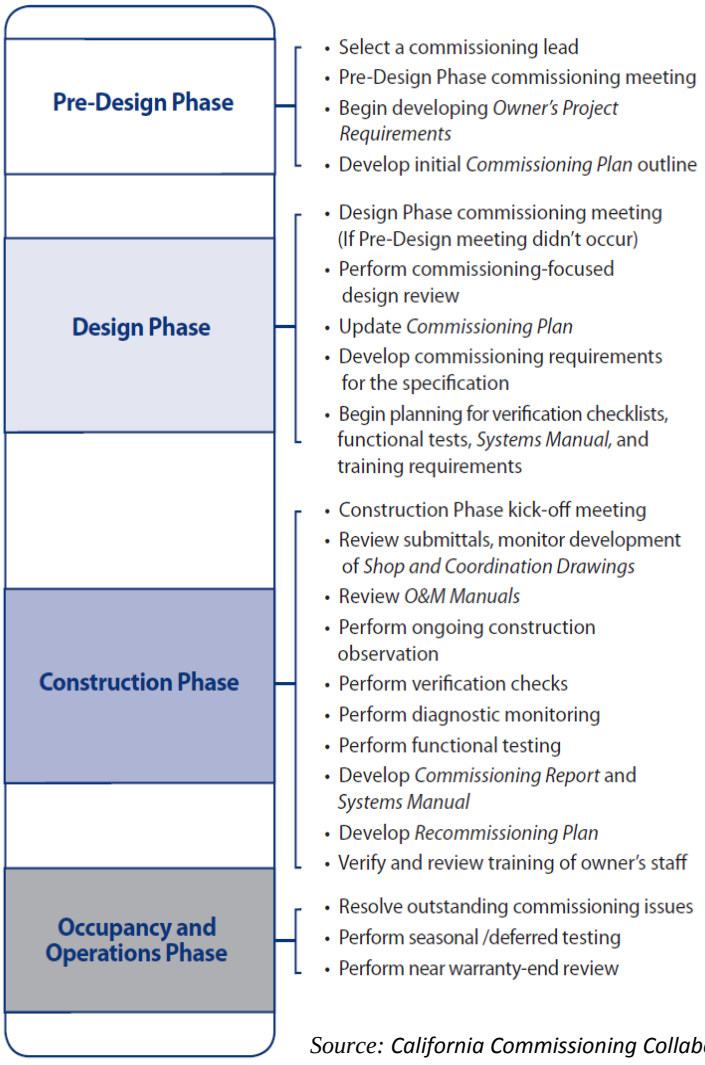
Since commissioning lasts throughout the design and construction process, it emphasizes teamwork between the various types of building professionals working on the project, including architects, engineers, contractors, construction professionals—and those who will be operating the building after its completion—the Operations and Maintenance (O&M) staff. Commissioning ensures the O&M staff is trained and the completed O&M Manuals are accurate. The O&M staff is actively engaged in the commissioning process. This spirit of collaboration begins with a commissioning kick-off meeting, where the commissioning plan is clarified and lproject roles, duties, and timeline are established.

Enovity's comprehensive approach complies with LEED Fundamental and Enhanced Commissioning guidelines, as well as other industry standards like ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) Guideline 0. The commissioning process is completed in phases, with each having specific landmarks along the way. The Commissioning Process includes:

Design Phase (Currently in progress)

- Ensuring the Owner's Project Requirements (OPR) has been developed.
- Ensuring the Basis of Design addresses the requirements of the OPR.
- Performing a thorough review of the design documents and providing review comments.
- Developing commissioning specifications.
- Developing a comprehensive Commissioning Plan which addresses the roles, responsibilities, communication protocols, documentation, schedules, and systems in the commissioning scope.
- Developing and reviewing commissioning checklists and functional test forms and procedures.
- Coordinating commissioning process with LEED certification.

Commissioning Process Overview



Source: California Commissioning Collaborative

LEED Newsletter

DOWNTOWN COURT TOWER

COMMISSIONING

ISSUE #2 July 2009

Construction Phase (Summer 2009–November 2011)

The Commissioning Agent will assist the owner and contractor in scheduling, planning and overseeing the commissioning process. Commissioning activities are coordinated and directed in a logical sequence with regular communication among all parties. Key elements of the construction phase include:

- Ensuring the OPR is followed.
- Reviewing contractor submittals.
- Finalizing the Commissioning Plan.
- Performing field inspections and documenting installation verification.
- Witnessing startup and performance test procedures.
- Back-checking failed tests and documenting equipment performance.
- Performing final acceptance testing.
- Assisting in developing and reviewing manuals, and training.

Warranty Phase (2012)

During the warranty phase, any additional seasonal testing that could not be completed during the construction phase is performed. Other key elements of the warranty phase include:

- Assisting O&M staff with indentifying operational deficiencies and fine tuning any control sequence of operations.
- Completing the Commissioning Report.
- Assisting with resolution of warranty issues.

What are the benefits?

By investing in the commissioning process, Maricopa County has ensured that its new facility has been designed and constructed as intended. This can save costly change orders during the construction phase and contractor call-backs during the warranty phase. It can also offer health and safety benefits because the building will be checked thoroughly for proper performance and reliability of systems. Commissioning offers myriad other benefits including:

- Improved building system performance and functionality
- Improved energy performance by more than 20%
- Lower maintenance coststs
- Increased occupant comfort
- Fewer calls to maintenance staff
- Better indoor air quality and safety
- Better facility staff training and operations documentation
- An established beginning of a sustainable operations program
- Extended equipment life
- Increased building value
- Fewer system deficiencies at building turnover
- Fewer disputes between building owner and contractor
- Fewer change orders
- Ensuring LEED prerequisite and additional enhanced commissioning credit

LEED Newsletter
DOWNTOWN COURT TOWER
COMMISSIONING
ISSUE #2 July 2009

CONSTRUCTION PROGRESS

Steel fabrication is on-going.

Excavation & shoring activities are 98% complete with backfill to occur after basement walls and lower level structure is installed.

- Bases for east & west tower cranes are in place.
- Matt foundation will be poured in July.
- Spread footings will be excavated and poured with the placement of the matt foundation.
- Mobile crane is installing tower crane bases, formwork, column anchor bolts and rebar.
- Long lead mechanical and electrical equipment is being pre-purchased.
- APS is installing electric service to the site.
- Tower cranes will be assembled in August.
- Structural steel erection will begin in late September 2009.